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Block buying and choice of issue method in UK seasoned equity offers

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Much of the new equity declined by existing shareholders in UK SEOs is bought in a few large blocks, both by other existing holders and by new investors. The paper argues that a placing process via negotiation with investors facilitates the purchase of large blocks better than the alternative method of selling rights on the market, and that this helps to explain the decline of rights issues in the UK. Other explanations for use of the placing method appear to be of limited relevance, except perhaps certification of issuer value.

Keywords: seasoned equity offer, open offers, placings, rights issues, blockholdings

JEL codes: G24, G32

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1. Introduction

In the last 20 years there have been major changes in the way that British listed companies issue equity. The rights issue was almost the only method used until the late 1980s, when the first open offers and placings appeared. In a placing the new shares are placed (sold) by private negotiation with a number of investors, or via accelerated bookbuilding. An open offer combines a placing via negotiation with an offer to the existing shareholders in proportion (pro rata) to their existing holdings. The open offer is currently the most common method used for larger issues in relation to issuer size, worth 5% or more of the existing equity, though pure placings of shares, not offered pro rata, are increasingly being used as well. At the time of writing (2008) there are only about 20 rights issues per year.

Previous research has identified several possible problems with rights issues, and several possible motives for the use of private placements or placings. But it is not fully clear what determines the choice of issue method in the UK. Little is known about the placing process in UK seasoned equity offers (SEOs), nor about the decisions of existing shareholders. The purpose of the paper is to identify who buys the shares in rights issues, open offers, and placings via negotiation, and to use this information to help in understanding the market for new equity and the observed choices of issue method. The paper uses shareholdings data, from dates before and after the new shares are issued, to identify the buyers. Prospectuses are also consulted, but they turn out to be an unsatisfactory source of information about both existing shareholders and the buyers of the new shares.

We highlight three findings from the share-purchase evidence. First, an average of 62% of the new equity in open offers and placings is equity that existing shareholders choose not to buy, or may not have been offered in the case of a placing. We call this declined equity.

Second, we find that much of the declined equity in open offers and placings is bought in large blocks by a small group of ‘enthusiastic’ investors, both existing shareholders who increase their percentage holdings, and new investors. Assuming that the investment bank is seeking to maximise the issue price, we infer that the highest price is achieved by placing much of the declined equity with a few investors in large blocks, rather than selling it more widely. Third, existing shareholders vary considerably in their response to an SEO. On average about one quarter maintain or increase their percentage holdings. But one half do not subscribe, despite forgoing a gain by not subscribing. We suggest that existing shareholders re-evaluate issuers at the time of SEOs, and that the resulting valuations are heterogeneous, although other factors could explain non-subscription.

The two processes that exist in the UK for buying declined equity are the sale of rights on the market in a rights issue, and the private placing of shares in an open offer or placing. In the light of our evidence, we propose that the placing method is a more effective method of facilitating the purchase of large blocks than is selling rights on the market. Open offers and placings enable informed purchase to be made of agreed amounts of the shares, at a negotiated discount. These conditions are harder to achieve via purchase of rights on the market. The hypothesised benefit from better facilitated purchases of large blocks is a smaller offer-price discount for the new shares. The placing process could in addition result in better certification of issuer value than occurs in a rights issue.

The paper considers other existing hypotheses regarding the choice of issue method, and finds that they have limited relevance for larger SEOs in relation to issuer size. The number of buyers identified is at least ten in 86% of the sample placings. In contrast, most private placements in the USA have one or two buyers. The much larger number of buyers in the bulk of the sample placings makes it unlikely that the motive for such placings was either to introduce an ‘active’ shareholder or, alternatively, to raise cash from an investor chosen by

the managers to help entrench the managers. We also find that, while some of the pre-emptive offers could have been chosen to protect a controlling shareholding, there was no such shareholding to protect in the majority of cases.

There is little previous evidence on the buyers in SEOs. Perhaps the closest evidence to ours is in the studies of Cornelli & Goldreich (2001) and Jenkinson & Jones (2004) about bookbuilding. However, their focus is on the allocation of shares by the investment bank in comparison with investors' bids, and their samples consist entirely or primarily of initial public offers.

The next section provides institutional background and reviews relevant theory and evidence on the choice of SEO method. Section 3 explains how the buyers in SEOs are identified, and describes the sample. Section 4 presents the findings on block buying and the behaviour of existing shareholders. Section 5 presents evidence on existing hypotheses about the choice of issue method. Section 6 concludes by making the case that the placing method via negotiation helps to sell blocks of shares.

2. Background

2.1 Rights issues, open offers and placings in the UK

In a *rights issue*, the new shares are offered pro rata to the existing shareholders, as is required under section 561 of the Companies Act 2006 (the Act). The rights to the new shares, in the form of provisional allotment letters, can be traded on the stock market during the offer period, in the same way as existing shares are traded. The offer period must be at least 21 days (section 562). Alternatively, large blocks of rights can be renounced by those entitled to them and privately placed with investors before the offer is publicly announced.

In an *open offer*, also known as a placing and open offer or a placing with clawback, the new shares are normally placed by private negotiation with a group of investors before the

offer is announced. The placing process can last from a few days to several weeks. The norm is probably about two weeks, as it is for the roadshow in US firm-commitment offers (Gao & Ritter, 2009). Potential placees (buyers) are contacted by the investment bank. Senior executives from the issuer will visit institutional investors who have shown interest in the issue, and these investors will have access to private information. They agree to become insiders and not to trade in the issuer's shares until after the issue is announced. On the announcement day the investors who have agreed informally to buy shares sign purchase or underwriting agreements, and become placees. The shares are then offered pro rata to the existing shareholders, who have a minimum of 14 days to buy them. New shares bought by the existing holders are said to be 'clawed back' from the placees. The entitlements to the new shares cannot be sold, unlike in a rights issue, so the entitlements are worth nothing if they are not taken up.

Although an open offer is a pro rata offer, and the Act does not specify that shareholders must be able to sell their rights, section 561 does say that a company must not 'allot' securities to a person unless the company has already made a pro rata offer, and the offer period has expired. In practice open offers are usually, though not always, followed by an extraordinary general meeting of the company which includes a special resolution to disapply shareholders' pre-emption rights with respect to the relevant offer, under section 571 of the Act. Presumably this is to allow for contracts to be made with placees for them to buy set numbers of shares that have been renounced by existing shareholders before the offer period has expired.

In a pure *placing* or subscription, all the new shares are placed by private negotiation, as in an open offer, and the placing is then announced. The shares are not offered pro rata to all existing shareholders, so there is no clawback. Alternatively, placings can be carried out via accelerated bookbuilding, in which the intention to place is announced and bids from

investing institutions are publicly invited. The book is closed after one or two days. There is normally no prospectus. Accelerated bookbuilds tend to be used by large companies issuing small amounts in relation to the equity in issue (<10%).¹

A placing is a non-pre-emptive issue, which requires a special resolution to have been passed at a meeting of the company, either giving prospective authorisation (section 570 of the Act) or giving authorisation for a specific issue (section 571). The convention in the UK is to seek prospective authorisation for placings of up to 5% of the existing equity only. Larger placings in relation to issuer size – studied in this paper – require a separate special resolution to be passed at an extraordinary general meeting held three weeks after the placing is announced, before the new shares can be issued.

Most open offers and some rights issues are accompanied by a ‘firm placing’ of a tranche of shares, with no clawback. The firm placing can arise in either or both of two ways. First, large shareholders can renounce their entitlements to the new shares before the issue is announced, in which case the new shares are placed firm before the announcement. Such shares were initially offered pro rata, so they form part of the rights issue or open offer. But having been renounced, they can be placed without being subject to clawback. Second, the rights issue or open offer can be accompanied by a placing of shares not offered pro rata.

Offers of securities to be traded on a regulated market in the UK require the publication of a prospectus (Financial Services and Markets Act 2000, section 85). So rights issues and open offers by UK listed companies have a prospectus. Offers are exempt if they are made only to ‘qualified investors’, including investing institutions, and if the additional shares are fewer than 10% of those already in issue (FSMA, section 86). This means that most

¹ Slovin et al (2000) study a sample of UK placings, in which the underwriting bank is said to have bought the shares before it had found placees. Some of these placings may be via accelerated bookbuilding. But the mean (median) issue size is 70% (30%) of the existing equity. This suggests that all or most of the sample are non-accelerated placings, in which informal purchase agreements had probably been obtained before the underwriter bought the issue.

placings of less than 10% of the existing equity do not require a prospectus, although in practice some placings in the 5% to 10% range do have a prospectus.

2.2 Choice of issue method and the role of placees

The US perspective: reasons for private placements. Hypotheses developed to explain the use of private placements in the USA might explain the use of the placing method in the UK. Open offers and negotiated placings are similar to US placements in that the shares are placed via private negotiation (with clawback in an open offer). Four potential reasons for placements have been identified.

(i) *Cost saving.* Wu (2004) argues that the placement method is cheaper for opaque firms, because they do not have to provide as much information as they would have to provide in a public offer. There are no regulatory requirements regarding information, and in most placements there are only one or a few placees.

(ii) *Active placees.* A placement might facilitate the introduction of an ‘active’ blockholder, who can monitor the company or add value in other ways (Wruck, 1989; Allen & Philips, 2000; Wruck & Wu, 2007). For example, the placee might be a new director, or another company with which the issuer has entered into an alliance. The placement helps align the interests of the company and the placee. But Wu (2004), Krishnamurthy et al (2005) and Barclay et al (2007) present evidence that most placees are passive, arguing against the active-placee hypothesis.

(iii) *Entrenchment.* Managers might select placees who help to entrench their position; more blatantly, they might issue shares to themselves at excessive discounts (Wu, 2004; Barclay et al, 2007). Managers can do this because they can have a major role in choosing placees and because the issue price can vary across placees.

(iv) *Certification.* The certification hypothesis holds that the commitment of a well-informed agent to buy an issue at the offer price conveys to the market a minimum informed value for the issuer. The agent can be the underwriting bank, as in Eckbo & Masulis (1992), or the placee(s), as in Hertznel & Smith (1993). The benefit of certification is that it results in a higher market price of the shares after announcement of the issue than would otherwise be the case. The higher market price implies a higher issue price for the new shares.² This benefits those existing shareholders who do not subscribe.

UK evidence. Several studies examine the choice between rights issues and open offers or placings. Compared with firms that choose rights issues, firms that choose open offers and placings are smaller and their shares are less liquid; the firms have a higher degree of information asymmetry and a higher proportion of the equity owned by directors (Korteweg & Renneboog, 2002; Barnes & Walker, 2006, though the latter's placing firms are similar in size to their rights-issue firms). This evidence is consistent with the idea that the placing method is beneficial because it gives buyers access to information about the issuer. It has also been suggested that the placing method is used to bring in new investors, and that this improves external monitoring of the firm and the liquidity of its shares (Slovin et al, 2000). There is a positive share price reaction to open offers and placings, and a negative reaction to rights issues; the difference has been attributed to superior certification of value in open offers and placings (Slovin et al, 2000; Armitage, 2002; Armitage & Snell, 2004; Barnes & Walker, 2006).

Some problems with rights issues have been identified. Myners (2005) surveyed companies and investing institutions on behalf of the UK Department of Trade and Industry.

² The condition for choosing a placement derived in Hertznel & Smith (1993) is that the proportion of ownership retained by existing shareholders, assumed not to subscribe, must exceed the proportion retained under an equivalent public offer. It can be shown using their model that this is formally equivalent to saying that the issue price in the placement must exceed the issue price in the public offer.

He reports that professional investors wish to retain pre-emption but that rights issues and open offers are seen as relatively slow and expensive compared with pure placings, especially for smaller amounts of equity. ‘...If rights issues could be conducted as quickly and easily as some of the non pre-emptive alternatives, I would probably not have been asked to write this report in the first place’ (p. 5). Armitage (2007) presents evidence that the cost of selling blocks of rights is substantial in the case of less liquid shares, reducing the benefit in a rights issue of being able to sell the rights. Nevertheless, the decline of the rights issue in the UK remains somewhat puzzling, as does the earlier near-disappearance of rights issues in the USA (see Eckbo & Masulis, 1992, for the US case).

Protection of controlling parties: a reason for rights issues. Cronqvist & Nilsson (2005) study the choice between rights issues and placements in Sweden. They present evidence supporting three explanations for the choices companies make. First, rights issues are used to retain family control. Second, placements are used to issue shares to a strategic partner to align the interests of partner and issuer. Third, when family control or a strategic partner are absent, placements are used by relatively opaque issuers, with high information asymmetry. Wu & Wang (2005) compare rights issues with non-pre-emptive offers in Hong Kong. They argue that rights are used by family-controlled firms when their private benefits from control are large. Similarly, venture-capital investors in the UK protect their voting power by requiring private investee firms to use rights issues (Myners, 2005, p. 12).

3. Method, data and sample

3.1 Method of identifying buyers

Our aim is to infer who has bought the new shares, by comparing the shareholdings before and after the SEO. We download two lists of shareholdings for each SEO. One is the

list for the date closest to and before the date on which the new shares were issued. The other is for the date closest to and after the issue date. The average gap between the lists in our sample is 95 days. Prospectuses are of limited use in identifying buyers; the information in prospectuses is very incomplete, except when there is a single buyer. The intentions of directors are always recorded in a rights issue or open offer, and are usually recorded in a pure placing. The prospectus might, in addition, record agreements to purchase blocks by certain other individuals and companies. Agreements on the part of investing institutions are rarely disclosed. The standard phrase is that shares have been placed ‘with certain institutional and other investors’.

The shareholdings lists we use are compiled by Argus Vickers. The main purchasers of the lists are professional investors and brokers seeking information on shareholdings in order to negotiate potential trades, especially in less liquid shares. Shareholdings at a given date are listed by ‘fund manager’, by beneficial owner and by registered owner. The lists by fund manager are designed to be the most informative from the perspective of someone interested in trading the shares. Many holdings of individuals, companies and other bodies are recorded in the fund-manager lists, though these holders are not fund managers. The fund-manager lists are used for the current study, supplemented by checks in the lists of beneficial owners. The lists of registered owners are dominated by nominee names and are not used.

Argus Vickers staff exercise some judgement regarding which shareholders to record in a fund-manager list, and how they are recorded. In particular, the holdings managed within a single investing institution are consolidated into a single entry. The underlying assumption is that there is some co-ordination in the decision-making, or at least some communication, across different funds managed within an institution. Some of the holdings of individuals are not shown separately but are grouped together under a heading such as ‘multi-managed’ or ‘individuals and private clients’. The group headings, and any holdings of unidentified

owners, together usually account for less than 15% of the total ownership.³ Holdings of less than 0.1% are not recorded, and so no list sums to 100% of the equity, but at least 80% is usually recorded, including holdings under group headings.

Fourteen per cent of the SEOs in the sample are accompanied by an issue of consideration shares. These are shares issued to shareholders of a company that is being acquired, in exchange for the acquired company's shares. Consideration shares and the buyers of such shares are excluded from the analysis.⁴

3.2 Sample

The sample of SEOs was collected by searching in the Perfect Information database of scanned documents for all prospectuses of rights issues, open offers and placings during the four years 2003-06. The Perfect Information data are now part of Bureau van Dyck's Osiris product. All rights issues and open offers have a prospectus, but placings of less than 5% of the equity usually do not. The decision to include only placings with a prospectus was partly in order to study larger placings in relation to issue size, that could have been structured as a rights issue or open offer, and partly to maximise the information available about each issue. There were 345 SEOs with a prospectus by UK listed companies during 2003-06. The final sample consists of 275 SEOs; 49 rights issues, 142 open offers and 84 placings. Reasons for exclusion are: lack of shareholdings data; the issuer was an investment trust; the issuer was not trading at the time of the issue; the issue was cancelled; there were consideration shares and the buyers are not recorded in the prospectus.

³ Holdings of shareholders who have not disclosed their identities to the company appear under the heading 'requires 212 reply'. This refers to section 212 of the Companies Act 1985 (section 793 of the 2006 Act) that obliges shareholders to disclose their identities.

⁴ In a few cases a 'vendor placing' was arranged, in which some of the consideration shares were placed for cash on behalf of target-company shareholders who elected to receive cash instead of shares. These shares are not excluded; they are treated in the same way as other shares issued via a firm placing.

The prospectuses of the pure placings in our sample say that the shares have already been placed, or occasionally, are being placed, and they make no mention of a public bookbuilding process. So these are placings via negotiation, not via accelerated bookbuilding. Because accelerated bookbuilds and other placings without a prospectus are excluded, our sample composition understates the use of placings by UK companies. However, evidence in Balachandran et al (2009) confirms that open offers have been the most common issue method in the UK in recent years. They collect announcements of SEOs on Bloomberg during 1996-2005, without requiring a prospectus. Their sample composition is 23% rights issues, 45% open offers and 32% placings. One fifth of the placings are via accelerated bookbuilding.

Table 1 around here

Table 1 shows features of our sample. The rights issues and open offers are each subdivided according to whether any shares were placed firm before the announcement. Pure rights issues and pure open offers are offers in which none of the shares were placed firm. Four points stand out. First, the shares in most open offers and placings are sold at substantial discounts. The discount is not a spread for the investment bank, which receives a separate fee. Only 18 (8.0%) of the open offers and placings are made at the pre-announcement midpoint market price or at a small premium, and all the rights issues are made at a discount. Of the issues at a discount to the pre-announcement market price, the mean (median) discounts are 16.1% (10.7%) for pure open offers, 17.6% (9.7%) for open offers with firm-placed shares and 15.0% (10.1%) for pure placings. Rights issue discounts are much deeper than those for open offers and placings, but the discount implies a smaller loss to nonsubscribers than in an equivalent open offer or placing, due to the ability to sell the rights. Ninety-five (44%) of the open offers and placings are made at a discount to the pre-announcement market price that is

deeper than 10%, despite a listing rule which states that ‘the price must not be at a discount of more than 10% to the middle market price ... at the time of announcing the terms of the offer or at the time of agreeing the placing (as the case may be)’ (Listing Rule 9.5.10, as at 1 November 2007).⁵

Second, pure rights issues are much larger than the other types of offer, because they are carried out by much larger companies. The median amount raised, £74m, is about seven times larger than the median amount raised in open offers, and 15 times larger than the median amount raised in pure placings. Pure rights issues account for 64% of the £13.3bn of equity raised in total in the sample issues. Thus, though small in number, rights issues remain very important in terms of funds raised. The median pure placing raises £5m, but it is possible to raise much more by this method, the largest pure placing being for £315m.

Third, 78% of the open offers and 14% of the rights issues involve a firm placing of shares alongside the pro rata offer. The firm placing is an important part of these combined offers; it typically raises roughly the same amount, £5m, as the pro rata offer net of any shares pre-renounced and placed firm. In the rest of the paper, the rights issues and open offers with firm placings will be treated as a single type of issue. The seven rights issues with a firm placing are similar to the open offers, except that they have much deeper discounts.

Fourth, half of the issuers were making an operating loss at the time of issue. 30% of the sample were in financial distress; they reported operating losses in each of the two years before the issue, and there is no indication in the prospectus that the losses had been anticipated. In addition, 20% of the issuers were making what might be called planned losses. These were companies at an early stage of product development, with zero or very low sales.

⁵ The rule does not apply if the discount has been specifically approved by shareholders, or if an issue is made under a pre-existing general authority to disapply shareholders’ statutory right of pre-emption. However, these exemptions apply to very few of the issues in our sample. Before 2005 the rule contained the qualification that it may be ignored if ‘the issuer is in severe financial difficulties or there are other exceptional circumstances’. It appears that many exceptions are allowed on these grounds. The issuers for 67 of the 95 open offers and placings at discounts deeper than 10% had been making an operating loss for at least two years.

4. Buyers of new shares

4.1 Evidence on all buyers

Declined equity. We start with data on how much of the new equity is equity to which the buyers were not entitled in a pro rata offer, or to which they would not have been entitled had the offer been a pure pro rata offer. It is equity that existing shareholders chose not to buy, or may not have been offered in the case of shares not issued pro rata. We shall call it *declined equity*. This equity required a further process in order to reach the buyer, beyond a pro rata offer to existing shareholders on its own. The further process is either trading of rights on the market in a rights issue, or arranging for purchases of shares in an open offer or placing.

Let b_j be the actual percentage of an issue bought by investor j , and s_j be the percentage that would be sufficient for any existing shareholder to maintain their stake, ie $s_j = H_j/N_{old}$, where H_j is the number of shares owned by j in the first shareholdings list, and N_{old} is the number of old shares. We shall call percentages bought by shareholders up to s_j , *pro rata equity*, and percentages given by $b_j - s_j$, *stake-increasing equity*. The declined equity in an issue is equal to the stake-increasing equity plus the equity bought by new investors. For each issue the new equity is divided into (i) the pro rata equity, $\sum_j b_j$ for $b_j \leq s_j$; (ii) the stake-increasing equity, $\sum_j b_j - s_j$, for $b_j - s_j > 0$; and (iii) the percentage bought by new investors. Appendix 1 explains the calculation in more detail. Appendix 2 describes a check on our method using the take-up announced in open offers.

Table 2 around here

Table 2 shows that, excluding pure rights issues, that do not rely on the placing method, the pro rata equity is 38% on average (with equal weighting across issues), the stake-increasing equity is 25% and the equity bought by new investors is 37%. So declined equity represents 62% of the issue on average, and existing shareholders are substantial buyers of it, as well as new investors. Looking across the types of offer, the mean percentages of pro rata equity are much higher for pure rights issues and pure open offers than for the other types of offer.⁶ This is because of differences in the proportions bought by new investors, which are 16% in pure rights issues, 12% in pure open offers, 36% in offers with firm-placed shares and 47% in pure placings.⁷ The proportions of stake-increasing equity are similar across the types of offer, at between 25% and 29%. There are eight placings bought by a single placee, in seven of which the placee is a new investor. Excluding these issues, the mean proportion bought by new investors in pure placings is 44%.

The evidence is consistent to an extent with statements in Slovin et al (2000) that pure placings entail the sale of shares to outside investors, and in Armitage (2002) that placed shares are bought mainly by new investors. But even in placings, over half the equity comes from existing shareholders.

Decisions of existing shareholders: evidence for heterogeneous valuations. This section presents data on the purchase decisions of existing shareholders. The holdings under group headings are excluded in arriving at these figures, because we are interested in the

⁶ If the pure placings had been structured as pre-emptive offers, the pro rata equity would no doubt have been higher than the pro rata equity we observe, but probably not by much. The larger existing shareholders are normally offered shares in a placing (information from Mark Brown, an investment banker who specialises in organising placings). Myners (2005, p. 13) observes that offering the shares to existing holders ‘will be the most rational approach in many cases even in the absence of any right to pre-emption’ because ‘it is the existing shareholders who know the company best’. We estimate that on average 13 existing shareholders buy shares in pure placings (Table 2).

⁷ The *t*-statistics exceed 7.0 for the differences in the means bought by new investors in pure rights issues or open offers, and offers with firm-placed shares or pure placings. The *t*-statistic is 3.0 for the difference in means between pure placings and offers with firm-placed shares.

decisions of individual agents. Also excluded are the eight placings with a single buyer, on the assumption that no other investor would have been able to subscribe in these issues.

We consider nonsubscribers first. Table 2 shows that the proportion of the *number* of shareholders who are nonsubscribers is 36% in pure rights issues, 47% in pure open offers, 46% in offers with firm-placed shares, and 63% in pure placings. Nearly two thirds of the nonsubscribers in open offers and placings sell some or all of their existing shares. By not subscribing, shareholders in open offers and placings at a discount transfer value to new buyers and to existing holders who increase their stakes. These discounts imply a mean (median) ex ante transfer, or gain forgone from not subscribing, of 7.8% (3.3%) of the pre-announcement share price, in the open offers and placings at a discount. The formula used to calculate the transfer assumes no change in the share price on announcement except for the mechanical scrip effect arising from issuing shares at a discount:

$$\text{Ex ante transfer} = (P_{AD-I} - P_{adj})/P_{AD-I} = \{[P_{adj} - (P_{offer} + Div)]N_{new}/N_{old}\}/P_{AD-I} \quad (1)$$

where $P_{adj} = [P_{AD-I}N_{old} + (P_{offer} + Div)N_{new}]/N$, the price adjusted for the scrip effect; P_{AD-I} = share price at the close of the day before the announcement; P_{offer} = offer price; Div = dividend new shares are *not* entitled to, if applicable;⁸ $N = N_{old} + N_{new}$.

It is possible that some discounted offer prices were set in anticipation of the impact on price of negative news to be released on the announcement day, in which case some of the transfer to buyers calculated using the pre-announcement price will be illusory. But the mean actual, ex post transfer to buyers arising from nonsubscription is 25.8% (5.2%) of the pre-announcement price, measured on the day after the announcement. This exceeds the transfer measured ex ante. The calculation is:

⁸ The scrip effect is less if the share is not entitled to the next dividend. To understand the formula, consider the following example. $P_{AD-I} = £1.00$, $N_{old} = 100$ shares, $P_{offer} = £0.50$, $N_{new} = 100$ shares, and the next dividend $Div = £0.50$, to which the new shares are not entitled. Following the issue the old shares will be worth £1.00, ie the dividend of £0.50 plus £100/200. Hence the expected price of the old shares on announcement, P_{adj} , is £1.00, not £0.75. Effectively the new shares are being offered at the same price as the old shares.

$$\text{Actual transfer} = \{[P_{AD+I} - (P_{offer} + Div)]N_{new}/N_{old}\}/P_{AD-I}$$

If we reduce the impact of a few huge post-announcement discounts by setting the maximum transfer at +100%, the mean transfer is 13.6% (5.2%). The actual transfer is greater than the ex ante transfer in (1) because the actual market price after the announcement exceeds the pre-announcement price adjusted for the scrip effect in 70% of the open offers and placings at a discount.⁹

The transfer is an estimate of the gain to someone who is willing to buy shares at the midpoint market price before or on the announcement day, and who is able to buy the shares at the offer price instead. This ignores the cost of selling the shares later, which could be several percentage points of the prevailing midpoint price for illiquid shares. The cost of selling is irrelevant to our estimate of the transfer, because a buyer will be expected to incur this cost at some time whether he buys at the midprice or at the offer price.

We now turn to subscribers. For open offers and placings, 20% of shareholders increase their percentage holdings, 5% approximately maintain them, and 23% buy shares but reduce their percentage holdings. In pure rights issues and pure open offers the mean proportions of existing holders who maintain their holdings are only 15% and 10%, respectively. Thus, the ‘default setting’ across issues of all types is for shareholders *not* to ‘take up their rights’ and maintain their percentage holdings, even in pure pre-emptive offers.

The above evidence suggests that existing shareholders re-evaluate issuers around the time of SEOs, and that there is substantial heterogeneity in their valuations. Nonsubscribers

⁹ To illustrate, consider the open offer with firm placing by MG Capital (7 September 2004), an extreme case. $P_{AD-I} = 300p$, $P_{offer} = 100p$, $P_{AD+I} = 225p$, $N_{old} = 381$ (000), $N_{new} = 2,881$. Using (1), $P_{adj} = 123.4p$, and the gain forgone by not subscribing assuming no change in equity value is

$$(300p - 123.4p)/300p = (123.4p - 100p)(2,881/381)/300p = 59\%.$$

But the actual gain forgone is

$$[(225p - 100p)(2,881/381)]/300p = 315\%.$$

A nonsubscriber declines to buy 7.56 new shares per old share ($= 2,881/381$). Had the post-announcement share price been 123.4p, ie the pre-announcement price adjusted for the scrip effect, the nonsubscriber would have forgone a gain of $7.56 \times 23.4p = 176.9p$ or 59% of the pre-announcement price. With a much higher post-announcement price of 225p, the gain forgone is $7.56 \times 125p = 945p$ or 315% of the pre-announcement price.

typically forgo a gain of about 3% ex ante, or 5% ex post, of the value of their holding as a result of not subscribing. Given the size of the gains lost by not subscribing, we would expect most shareholders to subscribe, if they thought that the issuer's pre-announcement market price was roughly correct. We might also expect a negative correlation between the proportion of nonsubscribers and the transfer to buyers, especially in open offers, in which all shareholders are invited to subscribe. Yet the correlation between the proportion of nonsubscribers and the ex ante transfer to buyers is 0.36 ($t = 4.3$) for open offers at a discount: a larger transfer is associated with a larger proportion of nonsubscribers.¹⁰ In addition, the majority of nonsubscribers sell shares. These points suggest that the reason for nonsubscription is that the shareholder perceives the issuer to be overvalued. A possible explanation for the positive correlation between the transfer to buyers and nonsubscription is that a higher proportion of nonsubscribers indicates that the issue was difficult to place, and required a relatively large transfer (ie a deeper discount, given the amount to be raised).

The idea that investors re-assess companies at the time of major events has also been put forward by Moeller et al (2005), in their case to explain large falls in the values of certain US companies that announced takeovers during 1998-2001. It would not be surprising if investors were careful during SEOs. Companies have reasons to issue shares when their market price is overvalued. The weight of evidence to date is that long-run average abnormal returns following UK rights issues, open offers and placings are negative, though the results are sensitive to the methodology (Ho, 2005; Iqbal et al, 2009); also, operating performance following rights issues is disappointing on average (Andrikopoulos, 2009). Our inference of heterogeneous valuations is consistent with the evidence in Bagwell (1992). He documents

¹⁰ This could arise because shareholders subscribe and then sell shares quickly, to exploit the discount. Such 'flipping' would cause downward bias in our estimates of pro rata equity. The check in Appendix 2 indicates that our estimates of pro rata equity are noisy but unbiased.

substantial differences in the prices at which shareholders are willing sell shares back to companies in Dutch auction repurchases.

Of course, other factors might be involved in investors' decisions. Some of the variation in the proportions purchased may be due to the decisions of investment banks in oversubscribed issues to vary across investors the ratio of shares allocated to shares bid for (Cornelli & Goldreich, 2001). An investor might not wish to maintain their stake in a given company in order to retain a suitably diversified portfolio, or because of a cash constraint, or because a larger holding might be less liquid or might carry more expectation of involvement with the company, or because of an institutional restriction on a fund's holding in the company. In a pure placing some of the shareholders might not be invited to subscribe. Whatever the extent to which these factors are at work, the point remains that old shareholders who buy more than their entitlements presumably believe the shares to be fairly valued or undervalued at the offer price. And none of the reasons other than valuation help explain why a shareholder would sell existing shares around the time of an SEO.

Numbers of buyers. Table 2 also presents data on the numbers of new and existing buyers. To be identified, a buyer must have held 0.1% of the enlarged equity, and must not have been hidden in a grouped heading. The mean numbers of buyers range from 23 for pure placings to 46 for pure rights issues. The numbers for open offers and placings are low compared with those for IPOs and SEOs that employ a bookbuilding process with a widespread invitation to investing institutions to bid for shares. Cornelli & Goldreich (CG, 2001) and Jenkinson & Jones (JJ, 2004) study the allocation of shares to placees by investment banks, using data on bookbuilding provided by one bank for each paper. CG's sample consists of 23 IPOs and 16 large SEOs, of unspecified type; JJ's sample consists of 26

IPOs. The issuers are from several different countries.¹¹ Most issues have a few hundred placees; the mean is 295 in CG. Neither paper mentions buyers of large blocks, but one can infer that some are present in their samples (from Table III in both papers).

It is possible that in some of our SEOs there were buyers of small amounts who can not be identified in our data. Whether or not we identify all the buyers, the numbers we estimate for open offers and placings in our sample are much larger than in the typical US private placement. Sixty-five per cent of US placements have one buyer in the large sample of Wruck & Wu (2005), although 15% have at least five buyers.

4.2 Decisions by blockholders

Holdings of 3% or more of the equity are examined in more detail. Blockholdings defined in this way have been studied in UK research because 3% is the cut-off for disclosure in UK annual accounts. Our aim is to identify both changes in existing blocks and the creation of new blocks, so if a shareholder had a stake above 3% before or after the issue, the stake at the other date is included whether or not it was above 3%. A holding under a group heading is not counted as a blockholding. When the date of the first shareholdings list precedes the date of the prospectus, the holdings of 3% or more as recorded in the prospectus generally take priority, to the extent they are available, because the prospectus date is more recent. But many prospectuses prove to be an inadequate source of information. Some have no list of holdings; others record registered blockholdings, in nominee names, rather than beneficial holdings; others have lists that appear to be incomplete. The disclosure of blockholdings in prospectuses is discussed further in Appendix 3.

¹¹ It is clear that few, if any, of the SEOs in CG's sample are by UK companies. The mean offer price is \$57, compared with a mean offer price in our sample of £0.94 (\approx \$0.50). Discussions with investment bankers suggest that most open offers and placings by UK companies do not involve bookbuilding as described by CG and JJ for IPOs, with hundreds of institutions invited to bid, and substantial oversubscription.

The blockholder purchases we calculate will not be entirely accurate, because of trading of old and new shares between the list dates. But blocks are calculated net of an allocation of the old shares that were sold by existing shareholders, as described in Appendix 1, so the average block size should not be biased upwards because of purchases of old shares. All the results involving blockholders are similar when the sample is restricted to the 55 issues in which estimated recorded sales of old shares are less than 5% of the number of shares in the issue. There is little noise arising from trading of old shares in this sub-sample.

Table 3 around here

The largest buyers. Table 3 presents data on the contribution and size of the largest block and up to the five largest blocks from each issue, of blocks bought by shareholders with at least 3% of the equity before or after the issue. In the open offers and placings, the mean contribution of the largest buyer per offer is 27% of the issue. The mean total contribution of buyers up to the largest five per offer is 51%. The mean block size, measured as a percentage of the enlarged equity (old plus new shares), is 9.8% for the largest block, and 4.4% for blocks up to the largest five.

Each block is either all pro rata equity, or it is split between pro rata and stake-increasing equity, or it is bought by a new investor. Our interest is in the declined equity. On average 33% of the new equity in open offers and placings is declined equity bought by the largest five large buyers, out of a total of 62% for declined equity (Table 2). In the sample of the largest block per issue, the mean size of the blocks of stake-increasing equity ($b - s$) is 5.3% of the enlarged equity, and the mean of the blocks bought by a new investor is 11.4%. In the sample of blocks up to the largest five per offer, the mean of the stake-increasing blocks is 3.1%, and the mean of the blocks bought by a new investor is 6.9%. The evidence in Table 3

establishes that much of the declined equity in open offers and placings is bought in large blocks by a handful of buyers.¹²

Comparing the different types of offer, the large new investors contribute much less in pure rights issues and pure open offers than in offers with firm-placed shares and placings. This suggests that the firm-placing method is especially useful in securing large new buyers.

Decisions by types of blockholder. Each blockholder is assigned to one of four categories, namely directors, investing institutions, non-investment companies and individuals. The bulk of the institutions are fund-management companies and the investment subsidiaries of major banks and life offices. Also included are private-client specialists such as Brewin Dolphin, though not all the funds they manage are fully discretionary; market makers; and (rarely) the company's own pension fund or employee investment fund.¹³ All unfamiliar company names in the lists that are not explained in the prospectus are checked via a search on the internet. A genuine operating or investment company, as opposed to an investment vehicle for an individual, should be traceable on the internet. A company about which there is no information is deemed to be an investment vehicle controlled by an (unknown) individual, and is classed as the holding of an individual. The holdings of individuals of the same surname are amalgamated, even if they are shown separately in the Argus Vickers list.

Table 4 around here

¹² Hill (2006) reports that in UK IPOs it is rare for blockholdings by new investors of 3% or more to be created. But she relies on information from prospectuses. SEO prospectuses do not normally disclose agreements to purchase made by investing institutions. It is likely that the same is the case for IPO prospectuses, which are almost indistinguishable from full prospectuses for pure placings of seasoned equity.

¹³ Some studies employ a finer categorisation that reflects the possible greater activity of certain types of investor, for example pension funds and venture-capital funds. In view of the lack of convincing evidence for these distinctions, we have not attempted to do this.

Table 4 shows the total number of block buyers in each category across the sample, and the means of the proportions of new equity provided by the buyers in each category. The purchase of new equity is largely by institutions, whichever the issue method. 84% of the 1,394 purchases by blockholders are by institutions. 67% of the existing institutional blockholders are buyers ($= 903/1,354$) and they contribute a mean of 24% of the new equity, out of a mean total of 52% contributed by blockholders across the full sample. New institutions contribute a further 14%. As a result of the institutional buying, the mean ownership by institutional blockholders increases from 30% to 34% ($= 63\%$ of the blockholder ownership). So SEOs are processes in which institutional dominance of the share register tends to be reinforced. Only 35% of the existing blockholding directors, other individuals and companies buy some shares, and their joint share of the new equity is 10%. The joint share of new buyers in these three categories is just 3%. Korteweg & Renneboog (2002), using data from Worldscope and prospectuses, also report increased institutional ownership following all three types of issue, and reduced ownership on the part of directors.

5. Choice of issue method

5.1 Reasons given in prospectuses

This section considers the choice of issue method. We first review the reasons for the choice of method found in prospectuses. Only three reasons appear, all to justify the use of the firm-placing method. Twenty-two of the prospectuses for pure placings state that a placing was chosen to save time and money compared with a rights issue or open offer. This is consistent with Myners (2005). Twenty-two of the prospectuses for placings and open offers accompanied by a firm placing state or imply that a main reason for the firm placing is to bring in new investors (though they do not say why this is a good idea). Finally, five of the

prospectuses for open offers state that a main reason for an accompanying firm placing is certainty for placees regarding the number of shares they will be buying. For example, 80% of the new shares in the open offer and placing by Superscape Group plc (30 October 2003) were placed firm

with certain of the Directors, the Proposed Director, and new and existing investors to provide such investors with certainty as to the minimum number of New Ordinary Shares they will receive. The Directors believe that the provision of certainty as to the minimum level of New Ordinary Shares that institutional shareholders will receive has been an important factor in attracting these investors to support the Issue (p. 14).

This reason is also mentioned in Myners (2005), who writes that ‘the rights issue mechanism restricts the ability of smaller companies to raise capital because potentially the best buyers of their stock cannot be offered their shares directly in any size.’ (p. 20).

5.2 Possible reasons for placings

We now comment on the hypotheses outlined in Section 2.2 to explain the use of private placements, and on the hypothesis that pre-emptive issues are used to protect the stakes of controlling shareholders. We argue that these hypotheses do not explain the choice of issue method for the majority of the issues in our sample, except possibly the certification hypothesis, which is discussed in the conclusion.

(i) Cost saving in providing information. Pure placings of less than 5% of the equity rarely have a prospectus, and 54 (64%) of the larger placings, in our sample, have a prospectus that is less comprehensive than would be found in a rights issue or open offer. So some pure placings could be cheaper than a pre-emptive alternative, as prospectuses state,

especially for small amounts in relation to issuer size. A cost advantage could explain the use of placings both when there are one or two buyers, as in most US private placements, and when accelerated bookbuilding is employed. However, saving on information costs is unlikely to be the main reason for the use of *open offers*, nor for the firm placings that accompany them. Armitage (2000) finds no difference between the costs of rights issues and open offers; a similar study would be required to assess the comparative cost of placings. All open offers, including the 78% that are accompanied by a firm placing, require a full prospectus to be produced and sent to all the existing shareholders. The fact that some of the shares are placed firm does not reduce the costs of the prospectus.

(ii) **Active placees.** The evidence to date suggests that new active placees are mostly incoming directors or companies. There is no evidence for the UK of a link between concentrated institutional ownership in a company and shareholder intervention or superior performance. UK investing institutions appear not to be active shareholders, even if they own large blocks (Faccio and Lasfer, 2000; Myners, 2001; Crespi-Cladera and Renneboog, 2003). However, there is some evidence of increased executive turnover around SEOs by poorly performing companies (Franks et al, 2001; Hillier et al, 2005). The US evidence regarding institutional investors is similar (Holderness, 2003).

In our sample there are only 38 issues (14%) where the largest purchase is at least 50% of the new shares, gross of any purchase of old shares. These issues could have been arranged primarily in order to secure investment by a potentially active placee. The placee is a director in 17 cases, an institution in nine, a company in ten, and an individual in two. Sixteen of the issues are pure pre-emptive offers, 22% of the pre-emptive offers, and 22 are placings or involve firm-placed shares, 11% of such issues. We find further that, when there is an existing majority or very large shareholder (stake of 40% or more) who is willing to maintain

or increase their stake, the company tends to choose a pre-emptive offer (13 out of 15 cases). When a new investor buys at least 50% of the issue, a pure placing or issue accompanied by a placing is used (12 out of 13 cases). However, few of the pure placings or open offers with a firm placing – 11% at most – could be motivated primarily to introduce an active placee.¹⁴

(iii) Entrenchment. A third possible motive for a placement is to introduce a placee who will support the existing managers, or to enable shares to be sold to the managers at a deep discount. The extent, if any, to which ‘supportive’ placees are selected in the UK is unknown. But it would be harder to find ten or more supportive placees, as in most placings in our sample (86%), than to find one, as in two thirds of US placements. In addition, we find no evidence that open offers or placings are used to sell shares to managers at an excessive discount. All placees pay the same price in our sample, unlike in US placements. We compile the ex ante gains to buyers in the 30 open offers and placings in which the directors purchase 10% or more of the issue, including issues at a premium. The mean (median) gain is 5.0% (2.0%) of the pre-announcement price, calculated using equation (1). This is smaller than the mean gain of 8.4% (3.0%) in the remaining open offers and placings.

5.3 Pre-emption and protection of voting power

Cronqvist & Nilsson (2005) find that Swedish companies with a controlling non-institutional party tend to choose rights issues rather than placements, in order to protect the voting power of the controlling party. To investigate whether this motive for pre-emption applies among UK listed companies, we examine the issues in which at least one shareholder

¹⁴ Most of the issues at a premium involve a potentially active placee. There are 18 issues made at an offer price the same as or above the midpoint market price as at the day before the announcement. The average (median) premium is 7.2% (4.6%). Six of these issues are bought entirely or mainly by directors, three by a single company and one by a single institution. In four of the other issues there is a substantial institutional placee who buys 30% or more. This evidence suggests that premiums usually arise when there is a major investor (14 out of the 18 cases) who may be able to provide shared benefits or obtain private benefits.

from the categories of directors, other individuals and companies has a holding of 20% or more before the issue. 20% is a large enough stake for the holder to have considerable influence.

For the analysis in the current section (5.3), the stakes are as recorded in the second shareholdings list, with no reduction made for imputed purchases of old shares. This is to avoid the possibility of downward bias in our estimates of the numbers of stakes that are maintained or increased.

There are 82 stakes of 20% or more in the three categories, across 71 issues. 33 of the stakes are maintained or increased, in 31 of the issues. A director, individual or company maintains or increases their stake in seven of the pure rights issues (17%), 12 of the pure open offers (39%), six of the issues accompanied by a firm placing (5%), and six of the pure placings (7%). So issuers with a ‘controlling’ interest on the share register do account for a higher proportion of the pure pre-emptive issues, especially pure open offers, than of the other issues. But we find that maintenance of a ‘controlling’ interest is not the usual motive for a rights issue in the UK.

Are purchase decisions related to size of stake? More generally, if larger stakes confer greater bargaining power, and therefore greater shared or private benefits, we would expect a positive relation between size of stake and the proportion of stakeholders who decide to maintain or increase their stakes. Table 5 presents evidence on this question. Stakes are divided into five size categories, and the proportions that are maintained or increased in each category are shown across the four types of investor.

Table 5 around here

There is no evidence of a positive relation between size of stake and the proportion of stakes maintained up to sizes of 20%, except on the part of individual holders. Institutions, which dominate the blockholdings of up to 20%, are somewhat *less* likely to maintain larger stakes: 33% maintain a stake between 3% and 5%, compared with 26% for a stake between 10% and 20% (z -score for difference in proportions = 1.60). But the proportions maintained of stakes between 20% and 50% do increase for all four types of investor, especially directors. For all types, only 21% of stakes between 10% and 20% are maintained, compared with 35% of stakes between 20% and 50% (z for difference = 2.70). Of the 17 stakes of 50% or more, 53% are maintained. Thus, shareholders are more likely to maintain larger stakes, of 20% or more, than smaller stakes. But only 26 institutional holdings are 20% or more, out of a total of 1,185 institutional holdings. None are 50% or more.

The low proportion of directors who maintain their stakes is striking. The proportion of director stakes of less than 20% that are maintained is below 8%, though the proportion rises to 31% for stakes between 20% and 50%, and 42% for stakes of 50% or more. Overall, only 14% of directors maintain their stakes. This suggests that directors tend not to feel obliged to maintain their stakes in order to display support for the issue.

The very low number of large institutional stakes is consistent with the evidence in previous research that institutions in the UK are not active shareholders, and therefore do not normally seek to accumulate controlling stakes. Since maintaining control is rarely of relevance to an institution, the evidence presented here is consistent with our earlier suggestion that an investor's valuation of the issuer is usually the main factor affecting the decision regarding purchase of new shares.

6. Conclusion

Existing shareholders decline to buy more than 62% of the new equity in open offers and placings via negotiation, on average. Much of this declined equity is bought in large blocks by a few investors, both existing shareholders who increase their stakes, and new investors. Among the largest five blocks per issue, the average block size is 3.1% of the enlarged equity for stake-increasing equity, in excess of the shareholder's pro rata equity, and it is 6.9% for blocks bought by new investors. The evidence from the behaviour of existing shareholders suggests that investors will not buy new shares without assessing the company first, and that the valuations resulting from investors' assessments vary considerably. Control considerations appear not to be the main determinant of most investors' decisions, especially not those of institutional investors. But there are other possible factors that might affect investor decisions, such as portfolio diversification and institutional limits on shareholdings, and which might explain why an investor would decide not to maintain their stake.

The above evidence throws light on why the placing process has been replacing the rights issue in the UK. Korteweg & Renneboog (2002) discuss the costs of selling rights and the potential difficulty faced by a new investor wishing to buy rights. Armitage (2007) finds that when shareholders wish to sell 25% or more of the rights in rights issues, they usually renounce their rights and have them placed privately before the issue is announced, rather trying to sell them on the market during the offer period. It appears that a higher price for the rights is achieved via the placing method, which reduces the wealth transfer to buyers. The current paper helps explain why a higher price is achieved. Much of the declined equity in open offers and placings is placed in large blocks with a few 'enthusiastic' buyers. This implies that the higher price is achieved by being able to facilitate such purchases, and by allocating large amounts to a few buyers rather than selling the shares more widely. The

motive in most cases for the block purchases is not the introduction of an active non-institutional placee. The block buyers in most issues are mainly investing institutions.

It is plausible that a potential buyer of a large block will wish to assess the company first, and our evidence of heterogeneous buying behaviour by existing shareholders implies that they do re-assess companies. The placing process provides investors with private information and access to senior executives, which will facilitate the assessment process. Buyers obtain substantial discounts of the order of 10% of the midpoint market price, and the placing process enables them to negotiate the level of discount directly with the investment bank. Buyers can also agree the exact or approximate numbers of shares that they will buy. In particular, the investment bank is in a position to ensure that those willing to buy large blocks at a good price will receive such blocks. This is our explanation for the firm placings that accompany most open offers: the amount to be purchased can be guaranteed in a firm placing, but is not certain if there is ‘clawback’ by existing shareholders. Our evidence suggests that the ability to agree the amount in a firm placing is especially useful in attracting new investors.

It is not impossible to acquire a large block of rights via purchases on the market, as is apparent in Table 3. Our contention is that market trading is a less efficient means of buying a large block. First, normal trading does not provide the private information about the company and access to senior executives that are a feature of the placing method. Therefore, would-be buyers are less well informed. The information benefit of a placing has been noted by Barnes & Walker (2006), and it is a key assumption underpinning the certification hypothesis. Second, trades in the amounts of the larger block purchases we document, and at the discounts often observed, are not part of routine trading via either the order book or market makers. It is difficult to sell a large block without ‘upstairs’ negotiation with potential buyers, especially in illiquid shares. Third, the supply of rights to the market depends on the

piecemeal selling decisions of shareholders during the offer period. The supply to a given buyer is not controlled by the investment bank arranging the issue. This makes it less convenient for the buyer to acquire a large block of rights at the requisite discount.

The above argument predicts that a rights issue should work relatively well when the market for the issuer's shares is liquid, since then there are many potential buyers who are already well-informed about the company, and the transactions costs of trading are low. This prediction is supported by the UK experience to date: it is mainly the largest companies that still use rights issues. Fewer than one fifth of the companies in our sample that chose a rights issue might have done so in order to protect a 'controlling' interest.

The argument can be compared with the certification hypothesis. The benefit of certification is that it results in a higher market price of the shares on announcement of the issue than would otherwise be the case. Our suggestion is that the placing process results in a higher purchase price for the new shares, compared with the alternative of selling rights on the market. The higher price arises from a *smaller discount* to the pre-announcement market price. Both benefits could arise; a placing could result in both a smaller discount and a higher market price. But there need not be certification, with an impact on the market price, for the placing process to yield a higher purchase price. It is doubtful whether issuer value is certified in rights issues with pre-renounced rights (Slovin et al, 2000; Armitage, 2007). Yet the pre-renounced rights are privately placed.

While the average market reaction to open offers and placings is more positive than it is to rights issues, it is not clear that the potential impact of an open offer or placing on the company's share price is actually a reason why companies choose these types of offer. There is no hint of this reason in prospectuses, nor in the survey and interview evidence to date (Burton et al, 2005; Myners, 2005). Our explanation sits more easily with the qualitative

evidence on the choice of issue method, which includes statements that the placing method helps to attract new investors and to provide certainty regarding the amount to be purchased.

An implication for company managers is that the purchase price achieved, including the price obtained by sellers of rights in a rights issue, is an important aspect of the efficacy of the SEO process. If our argument is correct, it is the higher purchase price achieved via the placing of larger issues in relation to issuer size that has persuaded the managers of UK companies to move away from pure rights issues. The offer price matters because a large majority of shareholders do not subscribe, or subscribe for less than enough to maintain their stake (Table 2). A longer or more expensive placing effort might be worthwhile in order to obtain a higher price. In addition, managers should be aware that an SEO of any type is likely to result in a substantial change in the composition of the company's shareholdings. Our evidence indicates that, in general, most existing shareholders do not simply buy new shares on a pro rata basis, even in pro rata offers.

A question remaining is why large discounts exist. We have argued that, since much of the new equity is in fact placed in large blocks in open offers and placings, the block purchases reduce the required discount. But we have not explored why this might be so. One possibility is that the demand for shares is inelastic, particularly demand for the shares of relatively small and opaque companies. Inelastic demand is suggested by the large proportions of nonsubscribing shareholders that we observe, with gains forgone because of nonsubscription. Gao & Ritter (2009) present evidence that investment bankers' marketing efforts during the bookbuilding period in US firm-commitment offers increase the elasticity of demand for the shares. Further research is needed to understand better the large and varied discounts observed in UK SEOs.

Appendix 1: calculation of the proportion of an issue bought by a given investor

The number of shares bought between the two dates of the shareholdings lists is larger than the number of shares in the issue, because of purchases of existing shares between the two dates. The mean (median) of the number of old shares bought as a percentage of the total number of shares bought between the two dates is 14.5% (11.3%). Let b_j be the proportion of new shares bought by investor j , adjusted for an imputed purchase of old shares:

$$b_j = B_{total,j}/B_{total}$$

where $B_{total,j}$ is the number of shares bought by j and B_{total} is the total number of shares bought, including purchases of old shares that were sold between the two dates. This calculation assumes that the old shares sold are bought by each buyer in proportion to their respective contributions to the total number of shares bought. Since $B_{total} > N_{new}$ (= the number of new shares), $b_j < B_{total,j}/N_{new}$, ie b_j is less than the proportion of the issue bought by j with no adjustment for purchase of old shares. An increase in a grouped holding is treated as a purchase by a single investor, as is the increase in unrecorded holdings, if there is one. The unrecorded holdings are the shares in issue at a given date, less the total of the holdings recorded in the fund-manager list.

The split between pro rata and stake-increasing equity is calculated as follows. Let S_j be the number of new shares that would maintain j 's stake: $S_j = H_j(N_{new}/N_{old})$, where H_j is the number held as at the first date, updated by information in the prospectus. For a purchase $B_{total,j}$ that increases j 's stake, ie $B_{total,j} > S_j$, the proportion of the issue contributed by the stake-increasing shares, $b_j - s_j$, is

$$b_j - s_j = [B_{total,j}(1 - Sales/B_{total}) - S_j]/(B_{total} - Sales),$$

$$\text{for } B_{total,j}(1 - Sales/B_{total}) - S_j > 0$$

where $Sales$ is the number of old shares sold between the two dates. The proportion contributed by the pro rata shares is

$$s_j = S_j/(B_{total} - Sales) \text{ for } B_{total,j}(1 - Sales/B_{total}) - S_j > 0,$$

or otherwise $B_{total,j}(1 - Sales/B_{total})/(B_{total} - Sales) = b_j$. That is, all the old shares allocated to j 's purchase are deducted from the stake-increasing shares before calculation of the proportions of stake-increasing and pro rata equity. The sum of the proportions is equal to b_j . The following example illustrates the calculation.

Example: Open offer and placing by Hyder Consulting plc

Announcement date	4 February 2005
Issue date for new shares	8 March 2005
First shareholder list date	24 February 2005
Second shareholder list date	16 May 2005
Shares in issue as at 24 February (N_{old}) (000)	26,899
Increase in shares in issue between list dates (N_{new})	5,435
Old shares sold by existing shareholders between list dates ($Sales$)	600
Total number of shares bought (B_{total})	6,035

A purchase by an existing shareholder

	24 February	16 May
Shares held by JP Morgan Fleming	247	1,106
Increase in shares held ($B_{total,j}$)		859
Increase net of allocation of old shares: $859(1 - 600/6,035)$		774
Pro rata shares (S_j): $247(5,435/26,899)$		50
Proportion of issue (s_j): $50/5,435$		0.9%
Stake-increasing shares: $774 - 50$		724
Proportion of issue ($b_j - s_j$): $724/5,435$		13.3%
Total proportion bought by JP Morgan Fleming (b_j): $774/5,435 = 859/6,035$		14.2%

Appendix 2: A check of the method of estimating purchases

The take-up announced in open offers can be used as a check of the accuracy of the proportions of purchases of entitlements inferred from the shareholdings lists.¹⁵ In most open

¹⁵ The take-up of rights reported in rights issues can not be used, because it includes subscriptions by buyers of rights in the market, who are not the original shareholders.

offers, the number of shares subscribed for by the shareholders entitled to those shares is announced at the close of the offer period. Purchases of any shares not offered pro rata, and shares bought in excess of entitlements, are not included in the take-up reported. We can estimate, from the shareholdings lists, the number of shares in an issue that are bought via take-up of entitlements. Our estimate is given by $\sum_j B_j$, subject to $\max B_j = H_j(N_{openoffer}/N_{old})$, where $N_{openoffer}$ is the number of shares in the open offer proper ($N_{openoffer} < N_{new}$ if there are shares not offered pro rata). The holdings under group headings and the unrecorded holdings are treated in each case as a single shareholder.

There are 93 open offers with usable data.¹⁶ The mean take-up of entitlements announced, expressed as a percentage of the total number of shares in the issue (N_{new}), is 37.7%. The mean take-up estimated from our data is 36.6%. The mean of the absolute values of the differences is 7.5%. So there is little bias, but some noise. If shareholders were tending to ‘flip’ shares, ie subscribe and then sell quickly to capture larger transfers in cash, we would expect our estimate of the take-up to be lower than the actual take-up as announced. We might also expect a positive correlation between the ex ante transfer of value to buyers (with positive sign), and the take-up announced less our estimate of the take-up. In fact this correlation is -0.13 ($t = -1.87$).

Appendix 3: Prospectuses as a source of blockholder information

Companies making a rights issue or open offer normally disclose existing shareholdings of 3% or more under ‘Additional Information’ in the prospectus. This used to

¹⁶ Some open offers have, in addition to the placing with clawback, an ‘excess application facility’, under which applications by *all* shareholders are allowed in excess of their entitlements. These open offers are not used, as the reported take-up might include shares bought via excess applications. In addition, three issues are excluded in which our estimate of the take-up is apparently much too low. In these cases the take-up announced appears to be all the shares purchased by existing shareholders, and not merely the take-up of entitlements. For example, the pro rata take-up reported for the Helphire offer (5 August 2005) is 92.4%, compared with our estimate for the pro rata take-up of 40.3% and for the total percentage purchased by existing holders of 98.8%.

be required under the Listing Rules of the UK Financial Services Authority. Detailed requirements for the contents of Listing Particulars were removed from the Listing Rules in 2005, but prospectuses have continued to disclose shareholdings of at least 3%.

We checked the prospectuses of the 266 issues with more than one buyer. The lists of existing 3% holdings are missing, unusable or incomplete in 157 (59%) of cases; 47% of the rights issues, 55% of the open offers and 75% of the pure placings. The lists are missing altogether in 48 cases, mostly in ‘mini prospectuses’ for placings. They are unusable in 37 cases, because the holdings are listed or part-listed by nominee name, and a nominee name does not indicate who the beneficial owner is. In the remaining 72 cases the prospectus lists are probably incomplete, because one or more holdings appears in the shareholdings lists before and after the announcement, with at least 3% on both dates, but does not appear in the prospectus. It is possible that the holder sold shares after the date of the first list but before the announcement, and then bought shares before the date of the second list. This would explain the absence of that holder from the prospectus. But it is implausible that this would happen often, because the smaller shares that dominate the sample have round-trip transactions costs of several percent. Also, shareholders who agree to become insiders by being invited into a placing are not allowed to trade in the shares before the announcement. Therefore, a holding of 3% or more that appears before *and* after the announcement, but not in the prospectus, is included in our sample of blockholdings before the issue.

Probably the main reason for non-inclusion of a 3% holding in the prospectus is ambiguity about the identity of the holder. Prospectuses normally follow the same convention as in the Argus Vickers lists, of recording holdings by institution rather than by managed fund. But checking in the list of beneficial holders shows that some prospectuses exclude certain institutional holdings because the owners have been viewed as the individual funds, each with less than 3%, rather than the parent institution with at least 3% in total. Holderness

(2003) observes, similarly, that US firms 'are inconsistent in how they report indirect ownership' (p. 54). The example he gives is the holding of a director who is also a director of another firm that owns a large block. Directors in the UK often hold shares via trusts or investment companies they control. UK prospectuses appear to be scrupulous about noting such interests, insofar as this can be assessed by comparison with the Argus Vickers data. It is the institutional holdings that are sometimes under-reported.

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Table 1
Features of the sample

There are 275 SEOs in the sample. Shares placed firm are shares not offered pro rata, or shares offered pro rata but renounced before the announcement and placed firm. The market value of the issuer is as at the close of the day before the announcement. Discount to market price = $[P_{AD-I} - (P_{offer} + Div)]/P_{AD-I}$, where P_{AD-I} = market price as at the day before the announcement, P_{offer} = offer price, and Div = dividend new shares *not* entitled to, if applicable (see note 10). The number of issues at a premium ($P_{offer} + Div \geq P_{AD-I}$) is 18. Financial distress means two years of operating losses before the announcement; planned losses means the company was still developing its products.

	Pure rights issues		Rights issues with firm- placed shares		Pure open offers		Open offers with firm- placed shares		Pure placings	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total proceeds (£m)	201.9	74.2	25.8	6.8	43.6	10.0	18.0	10.9	15.2	5.0
New shares ÷ old shares	57%	41%	197%	175%	80%	59%	215%	47%	106%	39%
Of which, shares placed firm (£m)	0	0	9.4	4.5	0	0	10.0	5.5	15.2	5.0
New shares ÷ old shares	0%	0%	104%	37%	0%	0%	160%	25%	106%	39%
Market value of issuer (£m)	847.7	351.7	47.2	10.2	119.8	25.0	47.5	28.0	56.8	19.8
Discount to market price	35.0%	34.5%	40.0%	36.8%	13.2%	9.9%	16.5%	9.6%	12.3%	8.8%
Excluding premiums	35.0%	34.5%	40.0%	36.8%	16.1%	10.7%	17.6%	9.7%	15.0%	10.0%
% of issuers in financial distress	17%		43%		55%		30%		29%	
% of issuers making planned losses	7%		0%		10%		23%		27%	
Number of issues	42		7		31		111		84	

Table 2
Purchases of new shares

All the figures are equally weighted means across issues of the relevant type. The medians in this and subsequent tables are similar to the means and are not reported. Pro rata equity in an issue is the sum of any percentages purchased by existing shareholders up to s_j ($= H_j/N_{old}$), the percentage that would be sufficient for each shareholder to maintain their stake. Stake-increasing equity is the sum of any percentages in excess of s_j (see Appendix 1). The data using the numbers of subscribers and nonsubscribers exclude holdings under grouped headings. A purchase by an existing shareholder that increases, or maintains, or reduces the stake means that the percentage of the issue bought is ≥ 1.1 , or 0.9 to 1.1, or < 0.9 times s_j . The sample for the decisions of existing shareholders excludes the eight placings with a single buyer, since investors other than the single buyer would not have been able to subscribe.

	Pure rights issues	Pure open offers	Rights & open offers with placed shares	Pure placings	Offers excluding pure rights issues
Contribution to issues from:					
Pro rata equity	55.3%	58.5%	39.1%	27.4%	37.4%
Stake-increasing equity	28.7%	29.9%	24.6%	24.6%	25.3%
Equity bought by new investors	16.1%	11.6%	35.4%	47.3%	37.0%
Number of new investors	11	7	12	10	10
Number of existing shareholders	35	19	24	13	19
Of existing shareholders by number, % who:					
increase their stake	26.3%	20.8%	20.1%	18.9%	19.8%
maintain their stake	14.6%	10.0%	5.6%	2.6%	5.2%
buy shares but reduce their stake	23.3%	22.2%	28.7%	15.1%	23.2%
do not change their no. of shares	7.6%	13.7%	11.0%	27.0%	16.8%
reduce their no. of shares	28.1%	33.3%	34.4%	36.4%	35.1%
Number of issues	42	31	118	84	233

Table 3
The largest buyers: contribution and size of blocks

The contribution of a block is its percentage of the issue; the block's size is its percentage of the enlarged equity (old plus new shares). The categorisation of each block is as follows. Let b_j be the percentage of an issue bought by investor j . A block of pro rata equity is b_j for $b_j \leq s_j (= H_j/N_{old})$. A block of stake-increasing equity is $b_j - s_j$, for $b_j - s_j > 0$. Each block is either all pro rata equity ($b_j \leq s_j$), or it is split between pro rata and stake-increasing equity, or it is bought by a new investor. The blocks are net of purchases of old shares, as described in Appendix 1. *Largest block per issue*: the figures are means for the largest block, or for the largest block after categorisation, in each issue of the relevant type. *Blocks up to the largest five per issue*: the contribution is the sum of the contributions of the blocks up to the largest five in the issue, of blocks bought by shareholders with 3% or more of the equity before or after the issue. The figures for contribution are means of the sum of blocks up to the largest five for each issue of the relevant type. The figures for block size are the means of all the blocks, or of the blocks after categorisation, across all the issues of the relevant type.

	Pure rights issues	Pure open offers	Rights & open offers with placed shares	Pure placings	Offers excluding pure rights issues
Largest block per issue					
Contribution to issue (% of issue)	22.0	35.2	21.3	30.5	26.6
Size of all blocks (% of enlarged equity)	7.4	14.8	8.7	9.2	9.8
Size of blocks of					
pro rata equity	5.1	9.5	3.4	3.0	4.6
stake-increasing equity	3.9	7.0	5.1	4.2	5.3
bought by a new investor	6.8	2.1	10.2	12.7	11.4
Blocks up to the largest five per issue					
Contribution to issue (total % of issue)	41.8	55.6	45.9	55.3	50.7
Contribution from pro rata equity	25.5	34.9	17.1	14.2	18.3
Contribution from stake-increasing equity	11.2	19.3	11.6	12.5	13.0
Contribution from new investors	4.9	1.3	17.2	29.8	19.8
Size of all blocks (% of enlarged equity)	3.3	5.8	4.1	4.4	4.4
Size of blocks of					
pro rata equity	2.2	3.8	1.8	1.5	2.0
stake-increasing equity	2.0	4.1	2.9	2.7	3.1
bought by a new investor	5.8	3.1	6.6	7.2	6.9

Table 4
Blockholder purchases by type of investor

Blockholders are defined as shareholders with at least 3% of the equity either before or after the SEO. The total number of blockholders or of purchases of a given type is the sum of such holders or purchases across all 275 issues in the sample. The contribution of new equity from blockholders of a given type is the sum of the percentages of issues bought by such investors, divided by 275. The contributions are net of purchases of old shares, as described in Appendix 1. The proportion of shares owned before or after is the sum of the percentage holdings before or after the issue, divided by 275.

Type of investor	Total number of old blockholders	No. of purchases by old and new blockholders	Contribution of new equity	Proportion of shares owned before issue	Proportion of shares owned after issue
Old directors	245	93	6.4%	13.6%	11.1%
New directors		14	1.1%		0.4%
Old institutions	1,354	903	23.9%	30.3%	27.5%
New institutions		274	14.1%		6.5%
Old companies	96	36	1.6%	3.7%	3.1%
New companies		11	1.7%		0.8%
Old individuals	187	53	2.3%	5.5%	4.3%
New individuals		10	0.5%		0.4%
Total	1,882	1,394	51.5%	53.1%	54.1%

Table 5
Blockholders who preserve their stake

Blockholders in this table are holders with at least 3% of the equity before the issue. The percentage figure in each cell is the proportion of the percentage holdings (stakes) after the issue that are at least 0.99 times the stake before the issue. The number in each cell is the number of stakes across the sample in the relevant category by size of stake and type of investor. The numbers of blockholdings are smaller in this table than in Table 4 because this table only includes blocks before the issue of 3% or more, whereas Table 4 includes, in addition, blocks of less than 3% held before the issue by shareholders whose stakes increased to 3% or more after the issue. The proportions purchased are not adjusted for purchases of old shares in this table, to avoid the possibility of downward bias in the estimates of the numbers of stakes that are maintained or increased.

Percentage holding before issue	Proportions of blockholders who maintain their stake, by type of holder				
	All	Directors	Institutions	Companies	Individuals
3.0% to 4.9%	27.6%	7.4%	32.6%	22.6%	4.4%
Number	721	54	567	31	69
5.0% to 9.9%	24.1%	7.8%	30.2%	8.8%	9.6%
Number	605	64	434	34	73
10.0% to 19.9%	21.0%	7.1%	26.0%	18.8%	21.9%
Number	262	56	158	16	32
20.0% to 49.9%	35.2%	30.8%	42.3%	28.6%	50.0%
Number	91	52	26	7	6
50.0% to 100%	52.9%	41.7%	na	100.0%	50.0%
Number	17	12	0	3	2
All holdings of 3% or more	26.0%	14.3%	31.1%	19.8%	11.5%
Number	1,696	238	1,185	91	182